

PATENT APPLICATION  
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Moris M. AMON

Appln. No.: 09/732,123

Attorney Docket No.: 10242

Confirmation No.: 9609

Group Art Unit: 1771

Filed: December 7, 2000

Examiner: Hai VO

For: PLASMA-TREATED POROUS FILM

RESPONSE UNDER 37 C.F.R. § 1.111

Commissioner for Patents  
Washington, D.C. 20231

Sir:

Please consider the following remarks in response to the Action mailed July 31, 2002.

Claims 1-11 are all the claims pending in the application.

**I. Paragraph No. 1: Restriction Requirement**

Regarding the Examiner's decision to make the restriction requirement final, Applicant respectfully disagrees.

As will be explained in greater detail below at section II of this response, the presently claimed *plasma-treated* porous film layer is patentably distinct from a porous substrate that has various coating layers thereon. Simply stated, however, the presently claimed plasma-treated porous film layer cannot be made other than by plasma-treating a porous film layer in accordance with the present invention.

Accordingly, Applicant respectfully requests that the present restriction requirement be withdrawn, and that the Examiner provide an examination on the merits of Group II, claims 7-11.

In the event that the Examiner is not persuaded to withdraw the restriction requirement, Applicant points out that where an applicant elects claims directed to a product, and a product

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claim is subsequently found allowable, withdrawn process claims which depend from or otherwise include all the limitations of the allowable product claim may be rejoined (*see*, MPEP §821.04). Therefore, in the event that the Examiner deems present claims 1-6 allowable, Applicant kindly requests that the Examiner rejoin method claims 7-11.

**II. Paragraph Nos. 4-6: Rejections Under 35 U.S.C. §§102/103 and 103**

Claims 1-4 and 6 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as allegedly obvious over U.S. Patent No. 5,837,377 to Sheu, *et al.* ("Sheu").

Claims 1-3 and 6 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as allegedly obvious over U.S. Patent No. 4,340,479 to Pall ("Pall").

Claim 5 is rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Sheu.

**Applicant's Response**

Applicant respectfully traverses.

Regarding §102, a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference (*see*, Verdegaal Bros. v. Union Oil Co. of California, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)). The identical invention must be shown in as complete detail as is contained in the claim (*see*, Richardson v. Suzuki Motor Co., 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)).

Regarding §103, the prior art reference (or references when combined) must teach or suggest each and every element as set forth in the claim (*see*, In re Vaeck, 20 USPQ2d 1438 (Fed. Cir. 1991)).

Applying the law to the facts of the present case, Sheu and Pall each fail to (i) disclose, either expressly or inherently, or (ii) teach or suggest, a *plasma-treated* thermoplastic, open-celled, porous polymeric film layer, wherein the film layer has been treated with *plasma* and the

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film layer has properties (a), (b) and (c), as recited in claim 1. The fact that the presently claimed film layer is a plasma-treated film layer is an element of the claimed invention that cannot be overlooked by the Examiner and distinguishes the claimed film layer from identical film layers that are not plasma-treated.

A critical feature of the present invention is that the claimed thermoplastic, open-celled, porous polymeric film layer exhibits superior hydrophilicity by virtue of having been plasma-treated not only on the outer surface of the film layer, but also in the inner surfaces of the pores, *i.e.*, the plasma-treatment penetrates into the pores and reacts with their interior surfaces (*see*, page 2, lines 17-24). This critical feature of the invention is reflected by the recitations in claim 1 that (i) the film layer is treated with plasma to make the pore space thereof more hydrophilic and (ii) the plasma-treated film layer exhibits the following properties (a) and (c) as recited in claim 1: (a) a receding contact angle for water of less than 35° and (c) a pore accessibility for water of at least 0.60.

The Examiner appears to have taken the position that both Sheu and Pall either disclose or suggest the claimed invention. According to the Examiner, the articles of Sheu and Pall are either identical to or only slightly different than "the claimed article prepared by the method of the claim" because the articles of Sheu and Pall allegedly possess properties that overlap with the claimed properties of the claimed article.

Applicant respectfully disagrees.

First, based on the Examiner's product-by-process comments running from page 3, line 16 through page 4, line 7 and page 4, line 21 through page 5, line 11 of the present Action, it appears that the Examiner has not given patentable weight to the recitation in claim 1 of a *plasma-treated* thermoplastic, open-celled, porous polymeric film layer, wherein the film layer has been treated with *plasma*.

Applicant respectfully disagrees. A film layer that has been treated with plasma to render it a plasma-treated film layer is distinguished from identical film layers that are either untreated or not plasma-treated. A plasma-treated film is distinct from (i) a corona discharge-treated film, (ii) a flame-treated film, and especially (iii) a film that has one or more layers applied thereon.

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Even if the distinctions in some cases are on the microscopic level, microscopic distinctions are not excluded from the purview of distinctions that give rise to patentability under §102 and §103. In fact, in the chemical arts, distinctions between claimed inventions and disclosures in the prior art are nearly always on the microscopic level.

Second, the properties of the articles in Sheu and Pall that the Examiner has referred to as essentially being identical to claimed properties (a) and (c) are not at all the same as claimed properties (a) and (c).

In this regard, Applicant kindly invites the Examiner to first consider the claimed receding contact angle for water (a). It is not at all the same as the contact angles disclosed in Sheu and Pall. Both Sheu and Pall require a substrate with a coating layer(s) provided thereon. Thus, the contact angles disclosed in Sheu and Pall refer to contact angles between an outermost coating layer and water. On the other hand, the claimed receding contact angle for water (a) refers to a contact angle between water and a film layer with a plasma-treated surface and pores.

Applicant also asks the Examiner to consider the claimed pore accessibility for water (c). At page 3, lines 10-14 and page 4, lines 16-20 of the Action, the Examiner states that the claimed pore accessibility is inherently present in both Sheu and Pall because the water contact angle and pore volume fraction together dictate the pore accessibility (the Examiner refers to page 10 of the specification).

Applicant respectfully disagrees. At page 10, lines 8-24 of the specification, Applicant states that the % accessible pores and surface contact angle are calculated from data obtained in a single measurement sequence on a Cahn micro-balance. This sentence at page 10 does not at all mean that the water contact angle and pore volume fraction together dictate the pore accessibility.

In fact, contact angle is a surface property of the film layer, and is one measure of the film layer's affinity for water. Pore accessibility is *another* measure of the film layer's affinity for water. Pore accessibility is defined as the ratio of the volume of water picked up by wicking ( $V_w$ ) to the pore volume ( $V_p$ ), and it directly measures how well the pores have been treated and rendered hydrophilic, *i.e.*, how well the plasma-treatment has penetrated into the pores and

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reacted with the interior surfaces of the pores. As explained at page 10, lines 10-12, the variables involved in arriving at the pore accessibility are listed from lines 13-24 of page 10. Contact angle is not among the listed variables.

Sheu and Pall do not disclose or suggest the claimed pore accessibility (c), including the variables, such as  $V_w$  (volume of water picked up by wicking,  $m_w/\rho_w$ ), that lead to pore accessibility.

For each of the foregoing reasons, Applicant respectfully requests that the Examiner reconsider and withdraw these prior art rejections.

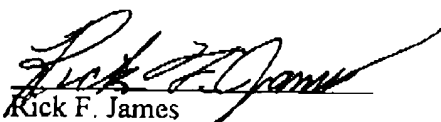
**III. Conclusion**

Applicant has amended pages 3 and 7 of the specification by providing the updated information, as requested by the Examiner. Accordingly, Applicant respectfully requests that the Examiner withdraw this objection.

Applicant has made a non-narrowing amendment to claims 4-5, as supported by the description at, for example, page 5, lines 18-30. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw this §112 rejection.

Respectfully submitted,

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